

## 01/31/14 Agenda

- Warm up exercise
- I'll accept any late homework on Sections 5.3-5.5 until today
- Quiz Corrections:
  - Quiz 5.3 corrections must be done by Friday 1/31 (today)
  - Quiz 5.4-5.5 corrections must be done by next Thursday (2/6)
- Review Homework - Worksheet 4 - Solve Systems by Substitution
- Section 6.2 day 2 - Solve by Substitution

Homework - Worksheet - Solve by Substitution

## Warm Up - Homework out!

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Solve using substitution:

1.  $y = 7 - x$

$$2x - y = 8$$

$$2x - 1(7 - x) = 8$$

$$2x - 7 + x = 8$$

$$3x - 7 = 8$$

$$\begin{array}{r} +7 \quad +7 \\ \hline \end{array}$$

$$3x = 15$$

$$\begin{array}{r} \hline 3 \quad 3 \end{array}$$

$$x = 5$$

$$y = 7 - x$$

$$y = 7 - 5$$

$$y = 2$$

$$(5, 2)$$

2.  $x = 3y + 3$

$$2x + 9y = 11$$

$$y = -2x - 4$$

$$3x + 4y = -6$$

$$(-2, 0)$$

$$y = -2x - 4$$

$$y = -2(-2) - 4$$

$$y = +4 - 4$$

$$y = 0$$

$$3x + 4(-2x - 4) = -6$$

$$3x - 8x - 16 = -6$$

$$\begin{array}{r} -5x - 16 = -6 \\ \quad +16 \quad +16 \\ \hline \end{array}$$

$$\begin{array}{r} -5x = 10 \\ \hline \end{array}$$

$$\begin{array}{r} -5 \quad -5 \\ \hline \end{array}$$

$$x = -2$$

## 6.2 - Solve SoE by Substitution

Target 6B

**SOLVE IT!**

**Getting Ready!**

A board game allows players to trade game pieces of equal value. The diagram shows two fair trades. The hotel is worth \$2400. How much is a car worth? Explain your reasoning.

How can you get started? One house equals 3 cars plus \$100. Two houses equal ...

$$y = \text{House}$$

$$x = \text{Car}$$

$$y = 3x + 100$$

$$2y + x + 100 = \$2400$$

$$y = 3x + 100$$

$$2y + x + 100 = 2400$$

$$2(3x + 100) + x + 100 = 2400$$

$$6x + 200 + x + 100 = 2400$$

$$7x + 300 = 2400$$

$$7x = 2100$$

$$x = 300$$

$$y = 3(300) + 100 = 1100$$

$$2(1100) + 300 + 100 = 2400$$

$$2200 + 400 = 2400$$

$$2400 = 2400$$

## 6.2 - Solve SoE by Substitution

## Target 6B

What does  
"substitution"  
mean?

To take out and replace with something else of equal value.

Other words we sometimes use that mean "substitute".

plug in

replace

in place of

swapping out

exchange

How do we  
do it?

1. Rewrite one equation to isolate a variable (solve for \_\_\_\_).
2. Replace (substitute) the equation in step 1 into the other equation replacing the variable.
3. Solve for the variable.
4. Plug the value back into one of the original equations and solve for the missing value.
5. Write the answer as an ordered pair.

## 6.2 - Solve SoE by Substitution

## Target 6B

Example:

There are 2 numbers that have been chosen. The sum of these numbers is 120. The larger number is 3 times the smaller number. Let  $x$  be the smaller number and let  $y$  be the bigger number. Write a system of equations to model this scenario. Find the values of the 2 numbers.

$x = \text{SMALLER}$

$y = \text{LARGER}$

$$x + y = 120$$

$$y = 3x$$

$$x = 30$$

$$y = 90$$

$$y = 3x$$

$$y = 3(30)$$

$$y = 90$$

$$x + (3x) = 120$$

$$\frac{4x}{4} = \frac{120}{4}$$

$$x = 30$$

Problem 8

$$\begin{aligned} -3x + 3y &= 4 \\ -2x + y &= 3 \end{aligned}$$

Problem 1

(2, 1)

$$y = 6x - 11$$

$$-2x - 3y = -7$$

$$-2x - 3(6x - 11) = -7$$

$$-2x - 18x + 33 = -7$$

$$-20x + 33 = -7$$
$$\begin{array}{r} -33 \quad -33 \\ \hline \end{array}$$

$$\begin{array}{r} -20x = -40 \\ \hline -20 \quad -20 \end{array}$$

$$x = 2$$

$$y = 6x - 11$$

$$y = 6(2) - 11$$

$$y = 12 - 11$$

$$y = 1$$

#2  $2x - 3y = -1$

$(4, )$   $y = x - 1$

$2x - 3(x - 1) = -1$

$2x - 3x + 3 = -1$

$-x + 3 = -1$

$\begin{array}{r} -x + 3 = -1 \\ \underline{-3 \quad -3} \\ -x = -4 \\ \underline{-1 \quad -1} \\ x = 4 \end{array}$